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Notice of Allowability	Application No.	Applicant(s)	
	09/826,969	JOSHI ET AL.	
	Examiner	Art Unit	
	Ted M. Wang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 14 April 2005.
2. ☒ The allowed claim(s) is/are 1,3-8,10-13,17-26 and 28.
3. ☒ The drawings filed on 03 September 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>08/01/2005</u>. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

Examiner Amendments ✓

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Agent Fariba Sirjani on July 29, 2005.

3. The application has been amended as follows:

4. In the claims:

- In claim 1, lines 3 and 6, change "the" to --- said ---, lines 19-21, change to the following:

wherein the estimating phase errors ~~includes~~ is provided by a first tone tracking circuit for tracking of each training tone and then calculating a phase angle of the training tone; and

wherein the first tone tracking circuit comprises a tone tracking mixer filter, a mixer, and a phase angle calculator.

- In claim 3, lines 3, 6-7, 21-22, 30-31, and 34, change "multi-carrier" to --- MCM ---, respectively, and change lines 22-24 to the following:

wherein the estimating time-domain phase errors ~~includes~~ is provided by
a first tone tracking circuit for tracking of each training tone and then calculating
a phase angle of the training tone; and
wherein the first tone tracking circuit comprises a tone tracking mixer filter,
a mixer, a phase angle calculator.

- In claim 4, lines 3, 6-7, 39-40, and 42, change "multi-carrier" to --- MCM ---, respectively, lines 9, 13, and 35, insert --- said --- before "training", respectively, line 21, insert --- said --- before "training tone", lines 17, 21, and 28, change "the" to --- said --- before "training", respectively, and line 17, change "tone" to --- tones ---.
- In claim 5, lines 3, 6, 8-9, 29-30, 37, 45-46, and 48, change "multi-carrier" to --- MCM ---, respectively, lines 11, 14, 15, and 41, insert --- said --- before "training", respectively, line 26, insert --- said --- before "training tone", lines 19 and 26, change "the" to --- said --- before "training".
- In claim 6, lines 3, 42, 50, 57-58, and 61, change "multi-carrier" to --- MCM ---, respectively, lines 11, 14, 15, 17, and 53, insert --- said --- before "training", respectively, line 38, insert --- said --- before "training tone", lines 18, 27, and 38, change "the" to --- said --- before "training".

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- In claim 7, line 20, insert --- first --- before "input", line 22, change "a" to --- the ---, line 25, change "an" to --- first ---, and lines 30-31, change to the following:

wherein the phase detector includes a tone tracking mixer filter unit, a mixer, -and
a phase angle calculation circuit.

- In claim 10, line 3, change "9" to --- 7 ---, and line 11, change "reference frequency" to --- second ---.
- In claim 17, line 16, change "producing" to --- produce --- and line 44, insert --- reference frequency input of the --- before "phase", and line 45, delete --- frequency input ---.
- In claims 19, 22, and 25, line 5, delete --- phase error ---.
- In claim 21, line 14, change "producing" to --- produce ---.
- In claim 23, line 3, change "21" to --- 22 ---, change "the" to --- said ---, and delete --- phase error ---.
- In claim 24, line 16, change "producing" to --- produce ---.
- Cancel claim 29.

Allowable Subject Matter

5. Claims 1, 3-8, 10-13, 17-26, and 28 are allowed.
6. The following is an examiner's statement of reasons for allowance:
 - The prior art fails to teach an apparatus and method of Claims 1, 3-8, 10-13, 17-26, and 28 that specifically comprises the following:

-- The instant application is deemed to be directed to a non-obvious improvement over the admitted prior art of the instant application and the invention patented in Pat. No. US 6,704,374, US 6,359,945, US 6,275,990, and US 5,406,592. The improvement comprises that

wherein the estimating time-domain phase errors is provided by a first tone tracking circuit for tracking each training tone and then calculating a phase angle of the training tone; and wherein the first tone tracking circuit comprises a tone tracking mixer filter, a mixer, and a phase angle calculator, as recited.

None of cited patents individually or in combination teaches above features.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is (571) 272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Ted M Wang

Examiner

Art Unit 2634

Ted M. Wang



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